

CONCEPT OF HYPERTENSION IN AYURVEDA: A REVIEW

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ABSTRACT

Hypertension is the most common life style disorder. Hypertension is chronic and often asymptomatic medical condition in which systemic arterial blood pressure is elevated beyond normal limits i.e. blood pressure more than 140/90 mm of Hg. It is also known as Silent killer because it rarely exhibits symptoms before it damages the heart, kidney and brain. It is a major risk factor for the development of Cardiovascular disorders, Stroke, Congestive Heart Failure and Renal disorders.. It is also known as silent killer. Now-a-days prevalence rate of hypertension is increasing day-by-day due to rapid modernization and stressful life. Improper life style and unhealthy dietary habits plays an important role in the development of Hypertension. Different theories have been proposed to explain hypertension from an *Ayurvedic* perspective, but there is no consensus amongst the experts. Hypertension cannot be considered as a *Vyadhi* (disease) as per *Ayurveda* but it can be understood by assessing the involved *Doshas*, *Dooshyas* (entity which is affected by morbid *Dosha*), *Srotas* etc. Many *Ayurvedic* scholars have proposed different theories about how hypertension can be understood in *Ayurveda*, but there is no standardized and widely accepted view about the *Ayurvedic pathogenesis* of this condition. There are still many controversies related to this disease in *Ayurveda*. Thus, this is an attempt to thoroughly understand hypertension and interpret it in terms of *Ayurvedic* principles, considering all the existing views.

KEYWORDS: Hypertension, *Vyadhi*, *Dosha*, *Dooshyas*, *Srotas*.

INTRODUCTION

In this modern era of specialties and super-specialties in medical care, *Ayurveda* stands out by its holistic approach towards the body as one single entity. The body with all its parts co-existing with interdependence and mutual interaction makes it difficult to comprehend when approached separately. In recent times, humanity has begun to realize this holistic approach to health with the multidimensional aspects of body, mind and soul.^[1] preached by *Ayurveda* ages ago. In the present times, life has been made easy for man with modernization every step of the way, but he has also paid for it by becoming prey to many lifestyle diseases. The diseases occur due to his faulty life style and stressful psychological conditions. These factors affect one's mind and homeostasis of the body by several psychosomatic mechanisms and lead to many lifestyle diseases such as diabetes and hypertension. As per World Health Organization report, about 40% of people aged more than 25 years had hypertension in 2008.^[2] Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.^[3] It is the most potent risk factor for diseases of

the brain, kidney, heart and peripheral arteries which may prove fatal if not managed effectively. Various *Ayurvedic* scholars have coined different names for hypertension such as: *Raktagata Vata*, *Siragata Vata*, *Avrita Vata*, *Dhamani Prapurana*, *Rakta Vikshepa*, *Vyana Prakopa*, *Raktamada*, *Uchharaktachapa*, *Vyana Atibala* etc.^[4] In each of these terms, different points of view have been adopted, but no one has denied the fact that in hypertension, the main pathogenesis occurs in *Rakta* along with the blood vessels. t first, it is essential to understand the physiological aspects of blood pressure in *Ayurveda* which is fundamentally based on the theory of *Tridosha*.^[5] The blood first ejected out of the heart, is then distributed to all parts of the body, and, thereafter, is returned back to the heart through the blood vessels termed as '*Sirah*' in *Ayurveda*.^[6] This return of *Rasa* (blood) towards heart is controlled by the function of *Samana Vata*.^[5,7] As it is known, blood pressure is the lateral pressure exerted by the flow of blood on the walls of the arteries.^[8] The two components of blood pressure are the systolic and diastolic blood pressure.^[9] The heart has its pacemaker (SA node) that generates electrical impulses on its own, which makes the heart contract

during the systole. This self-excitatory function of the heart can be attributed to the functioning of the *Vata Dosha*, in particular the *Vyana Vata* as it is seated in the heart and is responsible for blood circulation.^[5,10] Charaka clearly describes that *Vyana Vata*, a component of *Vata Dosha* constantly forces the blood out of the heart and distributes it.^[5,11] Thus it can be said that the systolic BP attained during contraction of the heart is controlled by *Vata (Vyana Vata)*. Though the SA node generates impulses on its own, the rate of its impulse generation is controlled by the autonomic nervous system via sympathetic and para-sympathetic nerve fibers emerging from the brain. It is the *Prana Vata* situated in the *Moordha* (Brain) [Ashtanga Hridaya, Sutra Sthana, 12/4] that controls the *Hridaya* (heart) and does *Dhamani Dharana* (arterial perpetuation),^[12] and thus heart rate is controlled by *Prana Vata*. In this context it can be understood as *Vyana Vata* and *Prana Vata* denote the nervous control of circulation because *Vata*, in general, denotes all neural mechanisms.^[5,13] The diastole is attained when the heart muscles relax. Here, diastolic blood pressure is only due to blood flowing through the narrow structures of the chambers of the heart and arteries and there is no active push by the heart. Thus diastolic BP can be taken under the domain of *Kapha Dosha (Kapha maintains the structural integrity of body organs)*, mainly the *Avalambaka Kapha* [Ashtanga Hridaya, Sutra Sthana, 12/15] because it is the resistance offered by the structure of the heart and the blood vessels that controls the diastolic blood pressure. Thus the peripheral resistance (faced by blood in the blood vessels) determines the diastolic BP. This is mainly influenced by the diameter and elasticity of the blood vessels which can be considered under the purview of *Kapha Dosha*. The vascular tone is also controlled by the autonomic nervous system which alters the diameter of the arteries as and when required.^[14] As *Dhamani Dharana* is a function of *Prana Vata* [Ashtanga Samgraha, Sutra Sthana, 20/2], the peripheral resistance offered by the arteries due to vasoconstriction caused by sympathetic action of nerves can be understood as a function of *Prana Vata*. The Auto-rhythmicity of the heart is due to the action potential created by the rapid influx of Na^+ and Ca^{++} ions and efflux of K^+ ions across the membrane of the SA node^[15]. The involvement of these chemical ions can be taken under the purview of *Pitta* due to its *Tikshna* (rapidness) *Drava* (fluidity) and *Sara* (diffusion/dispersion) *Guna*, [Ashtanga Samgraha, Sutra Sthana, 1/26] mainly *Sadhaka Pitta* situated in the heart. The basal metabolic rate (BMR) has a direct but imperfect positive correlation with the pulse rate and pulse pressure of the heart.^[16] This is on the basis of Read's and Gale's formulae.^[17,18] This means to say that variations in the basal metabolic rate cause changes in blood pressure as well. Thus the basal metabolic rate can be understood as a result of the action of *Agni* or *Pitta*, more precisely, *Pachaka Pitta* [Ashtanga Hridaya, Sutra Sthana, 12/10–12]. The blood volume and viscosity can be determined by the quality and quantity of the *Rasa* and *Rakta Dhatus*. These also determine the cardiac

output. The heart (*Hridaya*) and the blood vessels (*Rasavaha Dhamanis*) form the *Prana Vaha Srotas* and their *Srotomulas* which are mainly involved in the blood circulation.^[19] along with that *Medavaha Srotas*, *Mutarvaha Srotas*, *Swedavaha srotas* and *Udakavaha Srotas* play an important role. Thus the *Doshas*, *Dhatus* and *Srotas* involved in the blood pressure have been discussed.

DISCUSSION

Essential hypertension is defined as chronic elevation in arterial blood pressure (BP) > 140/90 mmHg with no definable causes.^[20] The various genetic and environmental factors mentioned earlier interact with each other and influence the pathogenesis of this condition. The main determinants of blood pressure as seen earlier are the cardiac output and peripheral resistance. Cardiac output is determined by the stroke volume and heart rate.^[21] So, for increase in blood pressure, there should be increase in either cardiac output or peripheral resistance. This happens when due to the influence of risk factors one or more of the different regulatory mechanisms of blood pressure gets hampered causing the blood pressure to increase. Defects in renal Sodium homeostasis causes decreased Na excretion leading to increased salt and water retention.^[22] This increases the plasma and extra cellular fluid thus increasing the cardiac output. This is one mechanism which leads to hypertension. This may be understood as the pathology due to *Dooshana* (vitiating) of *Pitta* and *Rakta* due to *Ati Katu & Lavana Rasa sevana* (excess intake of pungent and salty items) [Charaka Samhita, Chikitsa Sthana, 4/6]. The other mechanism is increased functional vasoconstriction due to impaired hormonal actions leading to increased peripheral resistance.^[23] This may be understood as *Pitta Dushti* due to endocrinal defects. Impaired functioning of the autonomic nervous system causing rise in blood pressure may be seen as *Dushti of Vata*. *Sushruta* has mentioned that *Vata Dooshita Rakta* (blood vitiating by *Vata*) is both *Sheeghra gama* (fast moving) and *Askandi* (hemodilution) [Sushruta Samhita, Sutra Sthana, 14/21]. Both these factors lead to changes in peripheral resistance. Hemodilution increases cardiac output,^[24] and *Vata* being *Ruksha* (dry) and *Sheeta* (cold) in nature may cause stiffness of vessels which increases peripheral vascular resistance and leads to hypertension.^[25]

The third mechanism is due to defects in the vascular smooth muscles (atherosclerotic changes caused by factors like hyperlipidemia) where the blood vessels lose their normal tone and this increases peripheral resistance, thus causing hypertension.^[26] This pathology may be due to the vitiating of *Kapha Dosha* and *Medo Dhatu*. Based on these points it can be deduced that the pathology of hypertension involves one or all the three *Doshas* which in turn affects the *Rasa* and *Rakta Dhatus* to cause this condition.

Ayurveda gives more emphasis to the prevention and promotion of the health. Avoiding etiological factors of disease is considered as the first line of management [Sushruta Samhita of Sushruta, Uttara Tantra, 1/25]. In the management of hypertension, non-pharmacological methods such as correction of lifestyle, diet etc. is proven to reduce the risk of Coronary heart disease (CHD) which is leading cause of morbidity and mortality worldwide.^[27] The role of Ayurveda is more pertinent here, many of the chapters in classical texts such as *Dincharya Adhyaya*, *Ritucharya Adhyaya*, *Matrashiteeya*, *Navegannadharniya Adhyaya* etc. are particularly dedicated to healthy lifestyle. These include the harmonious living pattern by a deeper understanding of human life and its interaction with nature. Adopting Ayurveda guidelines may be helpful to reduce the increasing incidence and management of lifestyle disorders which include hypertension.^[28,29] This will also reduce the risks which are associated with the drug therapy. Long-term drug treatment can be expensive and side-effects can threaten patients' adherence to the medicines.^[30] In general, reducing body weight, stopping smoking, healthy diet and increasing physical exercise are routinely recommended by most of the physicians.^[31] While treating this condition *Prasara Avastha* of all the *Tridosha* and *Rasa, Rakta and Meda Dushti* should be taken in to consideration and along with lifestyle modifications, appropriate *Vata Anulomana* (maintaining normal course of *Vata*) *Tridosahara* (normalizing all *Tridosha*), and *Rasa, Rakta Prasadakar* (blood purifying), *Medohara* (reducing excess fat) *Chikitsa* may be adopted.

In Ayurvedic medicine there are various Shodhan and Shaman Chikitsa available for hypertension. They are used popularly and effectively for the management of hypertension.^[3]

Shodhan Chikitsa: Bahya-Snehan, Sarvang Swedan, Shirodhara, Vaman, Virechana, Basti, Nasya, Raktamokshan, Hrudbasti, which is effectively used in hypertension.

Bahya-Snehan-Sarvang - Sahachar tail, Dhanvanatar Tail.

Sarvang Swedan- Avagaah Swed, Mrudu Bashpa Swed, Thin people: Shashtisalipinda Swedan.

Vaman- Madan Phalyog.

Virechana- Erand Tail+Shunthi Kwath daily Early Morning.

Basti-Dhanvanatar Tail, Dhashmool, Yashti, Pippali, Punaranava, Gokshur, Haritaki, Sarpagandha, Brahmi, Jatamansi Kwath of all these Drugs + Matsyadi Tail.

Nasya- Shaman Nasya-Bala Tail, Brahmi Ghrut, Anu Tail.

Raktamokshan-It reduces blood pressure by 10 to 20 mm of Hg.

Shaman Chikitsa: In Charaka Samhita, Acharya Charaka has explained Hrudya Gana, which is effective in Cardiac disorders, which plays important role for the management of hypertension.^[33]

CONCLUSION

Overall review of literature shows that the life style plays an important role in the development of hypertension. Improper life style and unhealthy diet, lack of exercise and stressful life increases the chances of hypertension. This review showed that the action of Ayurvedic drugs which are helpful for breaking down the Samprapti of hypertension. Because almost all drugs are anti-oxidant, hypertensive, cardio-tonic in action, hence it can be useful for controlling Blood pressure and reducing the complication of hypertension. Also, inclusion of proper Dincharya, Ritucharya, AharVihar, Pathya-Apathya, Yoga, Pranayama, Meditation in daily life helps to reduce the chances of hypertension.

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